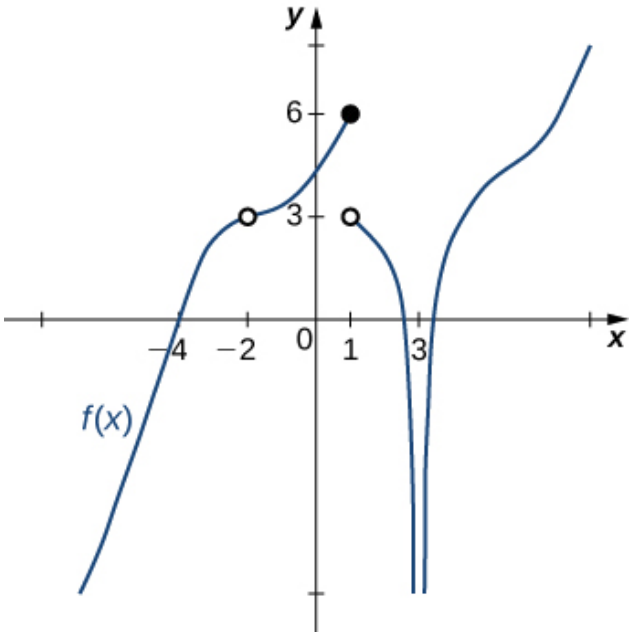
1. For the graph below, evaluate the limit: $\lim_{x \to 3} f(x)$.



A. $-\infty$

B. -2

C. 1

D. The limit does not exist

E. None of the above

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2. Evaluate the one-sided limit of the function $f(x)$ below, if possible.

$$\lim_{x \to 2^-} \frac{1}{(x+2)^3} + 9$$

A. $f(2)$

B. ∞

C. $-\infty$

D. The limit does not exist

E. None of the above

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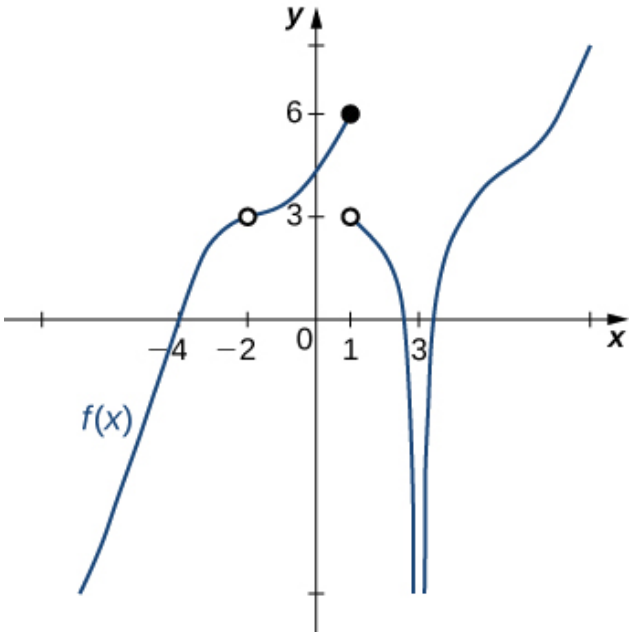
3. For the graph below, find the value(s) a that makes the statement true: $\lim_{x \to a} f(x)$ does not exist.



A. 1

B. 3

C. -2

D. Multiple a make the statement true.

E. No a make the statement true.

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4. Based on the information below, which of the following statements is always true?

$$f(x) \text{ approaches } 11.29 \text{ as } x \text{ approaches } \infty.$$

A. $f(x)$ is close to or exactly 11.29 when x is large enough.

B. x is undefined when $f(x)$ is large enough.

C. $f(x)$ is close to or exactly ∞ when x is large enough.

D. $f(x)$ is undefined when x is large enough.

E. None of the above are always true.

5. To estimate the one-sided limit of the function below as x approaches 9 from the right, which of the following sets of numbers should you use?

$$\frac{\frac{9}{x} - 1}{x - 9}$$

A. $\{8.9000, 8.9900, 9.0100, 9.1000\}$

B. $\{8.9000, 8.9900, 8.9990, 8.9999\}$

C. $\{9.0000, 9.1000, 9.0100, 9.0010\}$

D. $\{9.1000, 9.0100, 9.0010, 9.0001\}$

E. $\{9.0000, 8.9000, 8.9900, 8.9990\}$

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6. Evaluate the limit below, if possible.

$$\lim_{x \to 3} \frac{\sqrt{7x - 5} - 4}{8x - 24}$$

A. 0.125

B. ∞

C. 0.331

D. 0.016

E. None of the above

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7. Evaluate the limit below, if possible.

$$\lim_{x \to 7} \frac{\sqrt{6x - 26} - 4}{9x - 63}$$

A. 0.125

B. 0.272

C. ∞

D. 0.014

E. None of the above

---

8. Based on the information below, which of the following statements is always true?

$$f(x) \text{ approaches } 6.935 \text{ as } x \text{ approaches } \infty.$$

A. $f(x)$ is close to or exactly 6.935 when x is large enough.

B. $f(x)$ is close to or exactly ∞ when x is large enough.

C. $f(x)$ is undefined when x is large enough.

D. x is undefined when $f(x)$ is large enough.

E. None of the above are always true.

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9. Evaluate the one-sided limit of the function $f(x)$ below, if possible.

$$\lim_{x \to -6^-} \frac{-5}{(x-6)^8} + 2$$

A. $f(-6)$

B. $-\infty$

C. ∞

D. The limit does not exist

E. None of the above

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10. To estimate the one-sided limit of the function below as x approaches 6 from the right, which of the following sets of numbers should you use?

$$\frac{\frac{6}{x} - 1}{x - 6}$$

A. $\{6.0000, 6.1000, 6.0100, 6.0010\}$

B. $\{5.9000, 5.9900, 5.9990, 5.9999\}$

C. $\{6.1000, 6.0100, 6.0010, 6.0001\}$

D. $\{5.9000, 5.9900, 6.0100, 6.1000\}$

E. $\{6.0000, 5.9000, 5.9900, 5.9990\}$

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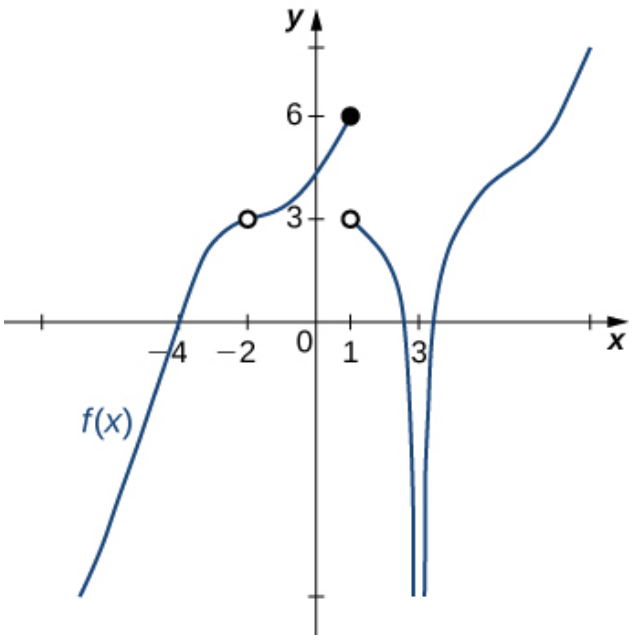
11. For the graph below, find the value(s) a that makes the statement true: $\lim_{x \to a} f(x)$ does not exist.



A. 1

B. 3

C. -2

D. Multiple a make the statement true.

E. No a make the statement true.

---

12. Evaluate the one-sided limit of the function $f(x)$ below, if possible.

$$\lim_{x \to -7^-} \frac{-3}{(x+7)^3} + 3$$

A. ∞

B. $-\infty$

C. $f(-7)$

D. The limit does not exist

E. None of the above

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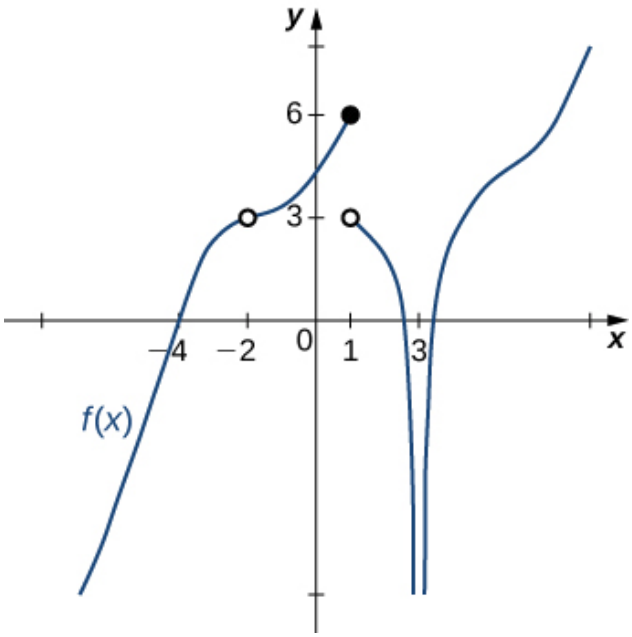
13. For the graph below, find the value(s) a that makes the statement true: $\lim_{x \to a} f(x) = 3$.



A. $-\infty$

B. 1

C. -2

D. Multiple a make the statement true.

E. No a make the statement true.

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14. Based on the information below, which of the following statements is always true?

$$f(x) \text{ approaches } \infty \text{ as } x \text{ approaches } 8.$$

A. $f(x)$ is undefined when x is close to or exactly 8.

B. x is undefined when $f(x)$ is close to or exactly ∞.

C. $f(x)$ is close to or exactly ∞ when x is large enough.

D. $f(x)$ is close to or exactly 8 when x is large enough.

E. None of the above are always true.

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15. To estimate the one-sided limit of the function below as x approaches 9 from the left, which of the following sets of numbers should you use?

$$\frac{\frac{9}{x} - 1}{x - 9}$$

A. $\{9.1000, 9.0100, 9.0010, 9.0001\}$

B. $\{8.9000, 8.9900, 9.0100, 9.1000\}$

C. $\{9.0000, 8.9000, 8.9900, 8.9990\}$

D. $\{9.0000, 9.1000, 9.0100, 9.0010\}$

E. $\{8.9000, 8.9900, 8.9990, 8.9999\}$

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16. Evaluate the limit below, if possible.

$$\lim_{x \to 5} \frac{\sqrt{8x - 15} - 5}{4x - 20}$$

A. 0.100

B. ∞

C. 0.025

D. 0.707

E. None of the above

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17. Evaluate the limit below, if possible.

$$\lim_{x\to 7} \frac{\sqrt{6x-17}-5}{4x-28}$$

A. 0.612

B. 0.100

C. 0.025

D. ∞

E. None of the above

---

18. Based on the information below, which of the following statements is always true?

$$f(x) \textit{ approaches } 17.021 \textit{ as } x \textit{ approaches } 6.$$

A. $f(x) = 17.021$ when x is close to 6

B. $f(x) = 6$ when x is close to 17.021

C. $f(x)$ is close to or exactly 17.021 when x is close to 6

D. $f(x)$ is close to or exactly 6 when x is close to 17.021

E. None of the above are always true.

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19. Evaluate the one-sided limit of the function $f(x)$ below, if possible.

$$\lim_{x\to 5^-} \frac{3}{(x+5)^3} + 3$$

A. $-\infty$

B. ∞

C. $f(5)$

D. The limit does not exist

E. None of the above

20. To estimate the one-sided limit of the function below as x approaches 1 from the left, which of the following sets of numbers should you use?

$$\frac{\frac{1}{x}-1}{x-1}$$

A. $\{1.0000, 0.9000, 0.9900, 0.9990\}$

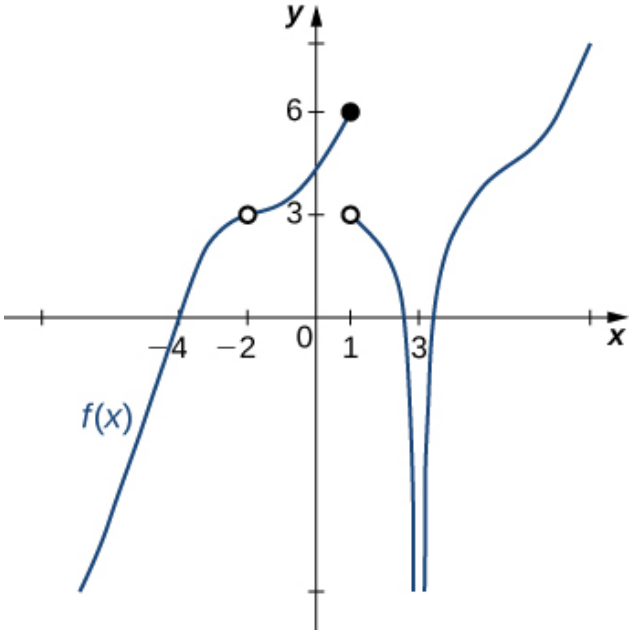
B. $\{1.0000, 1.1000, 1.0100, 1.0010\}$

C. $\{1.1000, 1.0100, 1.0010, 1.0001\}$

D. $\{0.9000, 0.9900, 1.0100, 1.1000\}$

E. $\{0.9000, 0.9900, 0.9990, 0.9999\}$

21. For the graph below, find the value(s) a that makes the statement true: $\lim_{x\to a} f(x)$ does not exist.



A. 1

B. 3

C. -2

D. Multiple a make the statement true.

E. No a make the statement true.

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22. Evaluate the one-sided limit of the function $f(x)$ below, if possible.

$$\lim_{x \to -4^+} \frac{-8}{(x+4)^9} + 9$$

A. ∞

B. $-\infty$

C. $f(-4)$

D. The limit does not exist

E. None of the above

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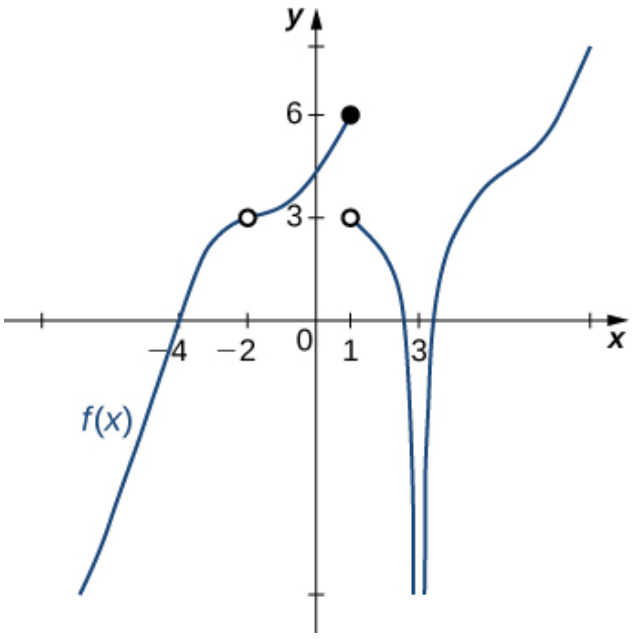
23. For the graph below, find the value(s) a that makes the statement true: $\lim_{x \to a} f(x) = 0$.



A. 3

B. 0

C. -4

D. Multiple a make the statement true.

E. No a make the statement true.

---

24. Based on the information below, which of the following statements is always true?

$$As\ x\ approaches\ 3,\ f(x)\ approaches\ 13.108.$$

A. $f(3) = 13$

B. $f(3)$ is close to or exactly 13

C. $f(13)$ is close to or exactly 3

D. $f(13) = 3$

E. None of the above are always true.

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25. To estimate the one-sided limit of the function below as x approaches 5 from the right, which of the following sets of numbers should you use?

$$\frac{\frac{5}{x} - 1}{x - 5}$$

A. $\{4.9000, 4.9900, 4.9990, 4.9999\}$

B. $\{5.0000, 4.9000, 4.9900, 4.9990\}$

C. $\{5.0000, 5.1000, 5.0100, 5.0010\}$

D. $\{5.1000, 5.0100, 5.0010, 5.0001\}$

E. $\{4.9000, 4.9900, 5.0100, 5.1000\}$

---

26. Evaluate the limit below, if possible.

$$\lim_{x \to 7} \frac{\sqrt{8x - 40} - 4}{4x - 28}$$

A. 0.125

B. 0.031

C. 0.707

D. ∞

E. None of the above

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27. Evaluate the limit below, if possible.

$$\lim_{x \to 8} \frac{\sqrt{5x - 24} - 4}{6x - 48}$$

A. 0.125

B. 0.021

C. ∞

D. 0.373

E. None of the above

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28. Based on the information below, which of the following statements is always true?

As x approaches ∞, $f(x)$ approaches 9.515.

A. $f(x)$ is undefined when x is large enough.

B. x is undefined when $f(x)$ is large enough.

C. $f(x)$ is close to or exactly ∞ when x is large enough.

D. $f(x)$ is close to or exactly 9.515 when x is large enough.

E. None of the above are always true.

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29. Evaluate the one-sided limit of the function $f(x)$ below, if possible.

$$\lim_{x \to 2^-} \frac{-3}{(x-2)^6} + 5$$

A. $-\infty$

B. ∞

C. $f(2)$

D. The limit does not exist

E. None of the above

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30. To estimate the one-sided limit of the function below as x approaches 5 from the left, which of the following sets of numbers should you use?

$$\frac{\frac{5}{x} - 1}{x - 5}$$

A. $\{5.1000, 5.0100, 5.0010, 5.0001\}$

B. $\{5.0000, 5.1000, 5.0100, 5.0010\}$

C. $\{4.9000, 4.9900, 5.0100, 5.1000\}$

D. $\{5.0000, 4.9000, 4.9900, 4.9990\}$

E. $\{4.9000, 4.9900, 4.9990, 4.9999\}$
